WEST Search History

DATE: Tuesday, May 27, 2003

Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT,JPAB,EPAB,DWPI,TDBD; PLUR=YES; OP=OR			
L6	L5 and emulsion	27	L6
L5	micromixer	141	L5
L4	L3 and lotion	151	L4
L3	L2 and gel	182	L3
L2	L1 and cream	205	L2
L1	microemulsion and ((424/401)!.CCLS.)	266	L1

END OF SEARCH HISTORY

L4: Entry 133 of 151 File: USPT Jan 13, 1998

DOCUMENT-IDENTIFIER: US 5707613 A
TITLE: Spontaneously formed clear silicone microemulsions

Abstract Text (1):
A method of spontaneously forming a highly stable clear microemulsion by combining (i) water; (ii) a volatile cyclic methyl siloxane or volatile linear methyl siloxane; and (iii) a silicone polyether surfactant. The amounts of each component are such that the composition is in the form of a microemulsion. The volatile methyl siloxane is present in the microemulsion in the form of particles having an average diameter of less than about 100 nanometers. The microemulsion is useful in personal care products.

Brief Summary Text (2):
This invention is directed to an optically clear silicone microemulsion formed with very little input of mechanical energy for mixing the components. More particularly, a ternary composition of water, a volatile cyclic or linear methyl siloxane (VMS), and a short-chain or low molecular weight silicone polyether, spontaneously provides optically clear microemulsions when combined with only hand agitation.

Brief Summary Text (3):
It is well documented (U.S. Pat. No. 4,999,398) that emulsions, especially silicone emulsions, are opaque, cloudy, and tend to separate on standing. Thus, the desirability of microemulsions, which contain micro-particles in the droplet phase, providing a measure of clarity.

Brief Summary Text (4):
As used herein, the term emulsion or macroemulsion means a dispersion of one immiscible liquid in another, in the form of droplets, with diameters approximately in the range of 100-1,000 nanometers (0.1-1.0 microns/1,000-10,000 angstroms .ANG.). In contrast, a microemulsion means a transparent, thermodynamically stable, dispersion of two or more immiscible liquids and a surfactant.

Brief Summary Text (5):
Microemulsions are clear or transparent because they contain particles smaller than the wavelength of visible light, which is typically on order of about 10-100 nanometers. Microemulsions may contain oil droplets dispersed in water (O/W), water droplets dispersed in oil (W/O), or they may be in the form of a bicontinuous structure. They are characterized by an ultra-low interfacial tension between the oil and water phases.

Brief Summary Text (6):
A microemulsion can be recognized by several of its inherent characteristics which are that (i) it contains oil, water, and a surfactant; (ii) there is a high concentration of surfactant relative to oil; (iii) the system is optically clear; (iv) the phases do not separate by centrifugation; and (v) the system forms spontaneously.

Brief Summary Text (7):
Thus, for purposes of my invention, an emulsion is considered as containing particles having an average diameter of more than 100 nanometers (0.1 microns/1,000 angstroms .ANG.), whereas a microemulsion contains particles having an average diameter of less than 100 nanometers (0.1 microns/1,000 angstroms .ANG.). Clarity or transparency is

controlled to a great extent by the particle size of the dispersed phase. The scattering of light is dependent on the particle size. Therefore, clear or transparent compositions appear to be a single phase without droplets or particles when viewed with the naked eye, as defined hereafter.

Brief Summary Text (8):
While Bailey in U.S. Pat. No. 3,299,112 describes emulsions formed from water, a silicone oil, and a silicone polyether, Bailey's emulsions are not clear; and require input of substantial mechanical energy to prepare. Furthermore, in contrast to my invention, the ternary system in the '112 patent is not a microemulsion; the silicone oil is not a volatile cyclic VMS; and where Bailey does describe a linear silicone oil, it is not a volatile linear silicone. Thus, the silicone oil in Bailey corresponds to R".sub.3 SiO(R".sub.2 SiO).sub.x SiR".sub.3 where x is 10-1,000. My corresponding volatile linear VMS have an "x" of 0-5, well below the range in Bailey. In fact, I discovered that where "x" exceeds 5, the emulsions tend not to be clear.

Brief Summary Text (9):
In addition, emulsions are recognized as inherently unstable systems separating with time. In contrast, my microemulsions form spontaneously and are stable indefinitely. The order of addition of the components does not influence their formation, and simple hand shaking in the temperature range of their stability is sufficient to cause the microemulsions to form.

Brief Summary Text (10):
My spontaneously formed clear microemulsions have particular value in the personal care arena. Because of the unique volatility characteristics of the VMS component of my ternary system, it can be used alone, or blended with other cosmetic fluids, to form a variety of over-the-counter personal care products.

Brief Summary Text (11):
Thus, it is useful as a carrier in antiperspirants and deodorants, since it leaves a dry feel, and does not cool the skin upon evaporation. It is lubricious and will improve the properties of skin creams, skin care lotions, moisturizers, facial treatments such as acne or wrinkle removers, personal and facial cleansers, bath oils, perfumes, colognes, sachets, sunscreens, pre-shave and after-shave lotions, shaving soaps, and shaving lathers. It can be used in hair shampoos, hair conditioners, hair sprays, mousses, permanents, depilatories, and cuticle coats, to enhance gloss and drying time, and provide conditioning benefits. In cosmetics, it will function as a leveling and spreading agent for pigments in make-ups, color cosmetics, foundations, blushes, lipsticks, eyeliners, mascaras, oil removers, color cosmetic removers, and powders. It is useful as a delivery system for oil and water soluble substances such as vitamins. When incorporated into sticks, gels, lotions, aerosols, and roll-ons, my ternary composition imparts a dry, silky-smooth, payout.

Brief Summary Text (12):
In addition, because my spontaneously formed clear microemulsions exhibit a variety of advantageous and beneficial properties such as (i) clarity, (ii) very small particle size, (iii) ultra-low interfacial tensions, (iv) the ability to combine properties of water and oil in a single homogeneous fluid, (v) shelf stability, and (vi) ease of preparation; they have wide application, but especially in antiperspirants, deodorants, in perfumes as a carrier, and hair conditioning.

Brief Summary Text (14):
It is an object of my invention to form a clear microemulsion by simply combining (i) water; (ii) a volatile cyclic methyl siloxane or volatile linear methyl siloxane; and (iii) a silicone polyether.

Brief Summary Text (16):
These clear microemulsions form spontaneously in the sense that they do not require energy input by means of mixing and shear devices. Thus, turbines, impellers, colloid mills, homogenizers, or sonolators, are not required to form these systems. It is only necessary that the appropriate amounts of the three components be added to a suitable container, and the container hand shaken. Of course, the components can be mixed or sheared with more energy input, and the microemulsions will still be obtained, but no advantage results from such additional energy usage.

Drawing Description Text (2):
FIG. 1 is a ternary phase diagram of the system comprising water, octamethylcyclotetrasiloxane (D.sub.4), and the silicone surfactant, for determining composition ranges of microemulsions prepared according to Example XIII of my invention. The compositions are defined by the shaded area depicted in FIG. 1.

Detailed Description Text (22):
For purposes of my invention, the criteria used to determine optical clarity is whether text can be read with the naked eye through a two centimeter diameter bottle filled with the microemulsion.

Detailed Description Text (23):
As noted in the textbook Microemulsions Theory and Practice, Edited by Leon M. Prince, Academic Press, Inc., Pages 7-10, New York (1977), the "Visual recognition of microemulsions should not be taken lightly. In fact, the microemulsion chemist should train himself carefully in this art. Use of sunlight rather than an artificial source of light is recommended. The eye is better than a microscope because the limit of resolution of a light microscope in blue light is only about 0.1 .mu.m so that droplets smaller than 0.14 .mu.m cannot be seen".

Detailed Description Text (26):
I formed optically clear microemulsions spontaneously at temperatures ranging between 47.degree.-62.degree. C. by merely adding to a container, 50 parts of de-ionized water, 50 parts of octamethylcyclotetrasiloxane (D4), and 25 parts of silicone polyether. No mixing, stirring, shearing, or input of mechanical energy for agitating the three ingredients was required. The polyether corresponded to the compound: ##STR7## wherein R1 was methyl, x was zero, y was one, and R2 was --(CH.sub.2).sub.3 (OC.sub.2 H.sub.4).sub.8 OH. I was able to read text through a two centimeter diameter bottle filled with the microemulsions. I determined that the microemulsions contained particles having an average diameter of less than 100 nanometers (0.1 microns).

Detailed Description Text (28):
I repeated Example I and formed clear microemulsions spontaneously at temperatures ranging between 60.degree.-68.degree. C. by merely combining in a container, 50 parts of de-ionized water, 50 parts of decamethylcyclopentasiloxane (D5), and 25 parts of silicone polyether. The optical clarity was the same as obtained in Example I.

Detailed Description Text (30):
I repeated Example I and formed clear microemulsions spontaneously at temperatures ranging between 44.degree.-60.degree. C. by merely combining in a container, 60 parts of de-ionized water, 40 parts of octamethylcyclotetrasiloxane (D4), and 17.65 parts of silicone polyether. The optical clarity was the same as obtained in Example I.

Detailed Description Text (32):
I repeated Example III including the use of salt which is a non-essential ingredient. I formed clear microemulsions spontaneously at temperatures ranging between 20.degree.-30.degree. C. by merely combining in a container, 50 parts of an aqueous solution containing 15% sodium chloride, 50 parts of octamethylcyclotetrasiloxane (D4), and 17.65 parts of silicone polyether. The optical clarity was the same as obtained in Example III.

Detailed Description Text (34):
I repeated Example IV and formed clear microemulsions spontaneously at temperatures ranging between 22.degree.-41.degree. C. by merely combining in a container, 30 parts of an aqueous solution containing 15% sodium chloride, 70 parts of octamethylcyclotetrasiloxane (D4), and 25 parts of silicone polyether. The optical clarity was the same as obtained in Example IV.

Detailed Description Text (36):
I repeated Example II and formed clear microemulsions spontaneously at temperatures ranging between 30.degree.-85.degree. C. by merely combining in a container, 50 parts of de-ionized water, 50 parts of decamethylcyclopentasiloxane (D5), and 66.67 parts of silicone polyether. The optical clarity was the same as obtained in Example II.

Detailed Description Text (37):
The following four examples illustrate preparation of clear antiperspirants. In Examples VII-X, an antiperspirant active was incorporated into my clear silicone microemulsion without input of mechanical energy for mixing the components.

Detailed Description Text (39):
I repeated Example I and formed clear microemulsions spontaneously at temperatures ranging between 42.degree.-58.degree. C. by merely combining in a container, 50 parts of an aqueous solution containing 25% of the antiperspirant active Aluminum Chlorohydrate (ACH-303), 50 parts of octamethylcyclotetrasiloxane (D4), and 25 parts of silicone polyether. The optical clarity was the same as obtained in Example I.

Detailed Description Text (41):
I repeated Example VII and formed clear microemulsions spontaneously at temperatures ranging between 36.degree.-69.6.degree. C. by merely combining in a container, 50 parts of an aqueous solution containing 25% of the antiperspirant active Aluminum-Zirconium Tetrachlorohydrex-Gly (ACH-370), 50 parts of octamethylcyclotetrasiloxane (D4), and 28.2 parts of silicone polyether. The optical clarity was the same as obtained in Example VII.

Detailed Description Text (43):
I repeated Example VII and formed clear microemulsions spontaneously at temperatures ranging between 30.degree.-46.degree. C. by merely combining in a container, 50 parts of an aqueous solution containing 50% of the antiperspirant active Aluminum Chlorohydrate (ACH-303), 50 parts of octamethylcyclotetrasiloxane (D4), and 21.95 parts of silicone polyether. The optical clarity was the same as obtained in Example VII.

Detailed Description Text (45):
I repeated Example VII and formed clear microemulsions spontaneously at room temperature by merely combining in a container, 63 parts of an aqueous solution containing 25% of the antiperspirant active Aluminum Chlorohydrate (ACE-303) and 15% of sodium chloride, 37 parts of octamethylcyclotetrasiloxane (D4), and 20.5 parts of silicone polyether. The optical clarity was the same as obtained in Example VII.

Detailed Description Text (49):
I repeated Example I and formed clear microemulsions spontaneously at temperatures ranging between 30.degree.-70.degree. C. by merely combining in a container, 50 parts of de-ionized water, 50 parts of hexamethyldisiloxane (MM), and 42.9 parts of silicone polyether. The optical clarity was the same as obtained in Example I.

Detailed Description Text (51):
I repeated Example XI and formed clear microemulsions spontaneously at temperatures ranging between 43.degree.-56.degree. C. by merely combining in a container, 50 parts of de-ionized water, 50 parts of hexamethyldisiloxane (MM), and 17.7 parts of silicone polyether. The optical clarity was the same as obtained in Example I.

Detailed Description Text (55):
I formed a number of optically clear microemulsions spontaneously at room temperature (22.degree. C.). In this example, compositions representative of my invention were prepared, wherein the mixing ratio of the three components comprising water, oil, and surfactant, was within the shaded area in FIG. 1 of the drawing, i.e. the area surrounded by the lines connecting points A, B, C, D, and E. I formed these microemulsions in the same manner as in Example I. Thus, I merely added the three ingredients to a container. No mixing, stirring, shearing, or input of mechanical energy for agitating the three ingredients was required. The polyether corresponded to the same compound used in Example I. I was again able to read text through a two centimeter diameter bottle filled with these microemulsions. They contained particles having an average diameter of less than 100 nanometers (0.1 microns).

Current US Cross Reference Classification (1):
424/401

CLAIMS:

1. A method of treating hair or skin comprising applying to hair or skin a microemulsion formed by combining (i) water; (ii) a cyclic methyl siloxane of the formula {(CH.sub.3).sub.2 SiO}.sub.p or a linear methyl siloxane of the formula (CH.sub.3).sub.3 SiO{(CH.sub.3).sub.2 SiO}.sub.q Si(CH.sub.3).sub.3 where p is 3-6 and q is 0-5; and (iii) a silicone polyether with a formula selected from the group consisting of ##STR8## where R1 is an alkyl group containing 1-6 carbon atoms; R2 is the radical --(CH.sub.2).sub.a O(C.sub.2 H.sub.4 O).sub.b (C.sub.3 H.sub.6 O).sub.c R3; x is 0-3; y is 1-3; z is 0-2; m is 3-5; n is one; a is 3-6; b is 4-20; c is 0-5; and R3 is hydrogen, a methyl radical, or an acyl radical.

2. A method according to claim 1 in which the methyl siloxane is present in the microemulsion as droplets with an average diameter of less than 100 nanometers.

5. A method of treating hair or skin comprising applying to hair or skin a microemulsion comprising (i) water; (ii) a methyl siloxane selected from the group consisting of cyclic methyl siloxanes of the formula {(CH.sub.3).sub.2 SiO}.sub.p where p is 3-6, linear methyl siloxanes of the formula (CH.sub.3).sub.3 SiO{(CH.sub.3).sub.2 SiO}.sub.q Si(CH.sub.3).sub.3 where q is 0-5, branched cyclic volatile methyl siloxanes containing difunctional units (CH.sub.3).sub.2 SiO.sub.2/2 and trifunctional units CH.sub.3 SiO.sub.3/2, and branched linear volatile methyl siloxanes containing monofunctional units (CH.sub.3).sub.3 SiO.sub.1/2, difunctional units (CH.sub.3).sub.2 SiO.sub.2/2, and tetrafunctional units SiO.sub.4/2 ; and (iii) a silicone polyether with a formula selected from the group consisting of ##STR9## where R1 is an alkyl group of 1-6 carbon atoms; R2 is the radical --(CH.sub.2).sub.a O(C.sub.2 H.sub.4 O).sub.b (C.sub.3 H.sub.6 O).sub.c R3; x is 0-3; y is 1-3; z is 0-2; m is 3-5; n is one; a is 3-6; b is 4-20; c is 0-5; and R3 is hydrogen, a methyl radical, or an acyl radical.

6. A method according to claim 5 in which the microemulsion contains 15-30% by weight of the silicone polyether, the proportions of methyl siloxane and water being between 40:60 to 80:20.

7. A method of treating hair or skin comprising applying to hair or skin a composition containing a microemulsion formed by combining (i) water; (ii) a cyclic methyl siloxane of the formula {(CH.sub.3).sub.2 SiO}.sub.p or a linear methyl siloxane of the formula (CH.sub.3).sub.3 SiO{(CH.sub.3).sub.2 SiO}.sub.q Si(CH.sub.3).sub.3 where p is 3-6 and q is 0-5; and (iii) a silicone polyether with a formula selected from the group consisting of ##STR10## where R1 is an alkyl group of 1-6 carbon atoms; R2 is the radical --(CH.sub.2).sub.a O(C.sub.2 H.sub.4 O).sub.b (C.sub.3 H.sub.6 O).sub.c R3; x is 0-3; y is 1-3; z is 0-2; m is 3-5; n is one; a is 3-6; b is 6-12; c is 0-5; and R3 is hydrogen, a methyl radical, or an acyl radical.

8. A method according to claim 7 in which the methyl siloxane is present in the microemulsion as droplets with an average diameter of less than 100 nanometers.

10. A method according to claim 7 in which the microemulsion has a composition defined by and within the shaded area depicted in the annexed sole FIG. 1.

L6: Entry 15 of 27 File: USPT Apr 16, 1991

DOCUMENT-IDENTIFIER: US 5008374 A
TITLE: IL-1.alpha. derivatives and drugs

Brief Summary Text (47):
The IL-1.alpha. and derivatives thereof of the invention, which have outstanding pharmacological activities as already stated, can be formulated into useful preparations for the afore-mentioned medicinal uses. Examples of such medicinal preparations include immunostimulators for producing antibodies, enhancing the effect of vaccines and curing immunodeficiency, antitumor agents, cytokine production promotors, anti-inflammatory agents, agents for preventing or curing radiation sickness, agents for preventing or curing opportunistic infections, etc. These medicinal preparations are formulated usually in the form of pharmaceutical compositions comprising a pharmacologically effective amount of the IL-1.alpha. or derivative thereof of the present invention and a suitable carrier. Examples of useful pharmaceutical carriers include excipients and diluents such as filler, extender, binder, wetting agent, disintegrator, surfactant, etc. which are generally used for preparing pharmaceuticals of the desired form to be used. The form of the pharmaceutical compositions is not specifically limited insofar as they effectively contain the present polypeptide or IL-1.alpha. but can be, for example, in the form of tablets, power, granules, pellets or like solid preparation. Usually, however, it is suitable that the composition be in the form of a solution, suspension, emulsion or the like for injection. Alternatively, such a composition can be a dry product which can be made liquid with addition of a suitable carrier before use. The pharmaceutical compositions mentioned above can be prepared by usual methods.

Brief Summary Text (52):
Portions (0.1 ml) of the test solution diluted to varying concentrations were placed into the wells of 96-well microplate (Corning Glass Works), 0.1 ml of Eagle's MEM suspension containing 10% FCS containing human melonoma cells A375 in an amount of 2.times.10.sup.4 cells/ml was then placed into each well, and the cells were incubated in a CO.sub.2 incubator (Napco Co., Ltd.) for 4 days. After the incubation, 0.05 ml of 0.05% Neutral Red (Wako Pure Chemical Ind. Ltd.) was placed into each well, followed by incubation at 37.degree. C for 2 hours. After removing the supernatant, 0.3 ml of phosphoric acid buffer saline was gently poured into each well for washing. After removing the washing, 0.1 ml of mixture of sodium phosphate monobasic and ethanol in equal amounts was placed into each well, the plate was shaken for several minutes by a micromixer, and the amount of pigment taken into the cell was measured at an absorbance of 540 m.mu. using a photometer for 96-well microtitration plates (Titer check multiscane, Flow Lab.) to determine growth inhibition activity. The test group exhibiting 50% of the inhibition of cell growth of the control group, i.e., the test group which exhibited 1/2 the absorbance measured of the control group, was identified. The reciprocal of the number of times of dilution for the test group was taken as the GIF activity unit. Accordingly, when the GIF activity is 10 units, for example, the test solution, if diluted tenfold, still has activity to inhibit cell growth 50%.

L6: Entry 8 of 27 File: USPT Mar 3, 1998

DOCUMENT-IDENTIFIER: US 5723117 A
TITLE: Use of interleukin-1 (IL-1) to inhibit development of hepatitis

Detailed Description Text (38):
Illustrating the method by which the drug of the present invention is prepared, said drug is prepared into a form of a drug composition generally by incorporating a pharmaceutically effective amount of IL-1 active compound (IL-1.alpha., IL-1.beta., or a derivative of these) and the above-mentioned optional components, along with a suitable pharmaceutical preparation carrier. As the pharmaceutical preparation carrier, any carriers commonly used for the preparation of drugs depending on the use to which they are directed, such as excipients or diluents, e.g., fillers, extenders, binders, wetting agents, disintegrators, etc., can be used. There are no limitations to the form of the drug composition so long as the same effectively contains IL-1 active compound which is the effective component. It may be a solid preparation, e.g., tablet, powder, granule, pill, etc., or an injection, e.g., liquid, suspension, emulsion, etc. Alternatively, it can be prepared into a dry product which can be made liquid by the addition of a suitable carrier. All these drug compositions can be prepared by conventional methods.

Detailed Description Text (47):
0.1 ml of sample solutions with various concentrations were placed in a 96-well microplate (Corning Co.). Then, 0.1 ml of Eagle's MEM suspension containing 10% FCS which contains human melanoma cell A375 at a concentration of 2.times.10.sup.4 /ml was added to each well, and cultivated for 4 days in a CO.sub.2 gas cultivator (a product of Narco Co.). After the cultivation, 0.05 ml of neutral red (a product of Wako Pure Chemical Co.) was added to each well and the cultivation was continued for 2 hours at 37.degree. C. After removal of the supernatant, 0.3 ml of a phosphate buffer-physiological saline was gently added to each well to wash it. After removal of the washing liquid, 0.1 ml of a 1:1 mixture of monosodium phosphate-ethanol was added to each well, and the plate was shaken for several minutes in a micromixer. The amount of pigment taken into cells was measured by a 96-well microtitration plate photometer (Titer check multiscan; a product of Flow laboratories Co.) at the absorbance of 540 nm to determine the proliferation inhibitory activity. The reciprocal of the dilution factor of sample groups inhibiting 50% of the cell proliferation of the control group, i.e., the groups exhibiting one half of the absorbance of the control group, was taken as one unit of the GIF activity. This means that if a sample solution has 10 unit of GIF activity, for example, the solution, when diluted to 10-fold, still exhibits an activity of inhibiting 50% of the cell proliferation.

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L6: Entry 5 of 27 File: USPT Aug 8, 2000

DOCUMENT-IDENTIFIER: US 6099864 A
TITLE: In situ activation of microcapsules

Brief Summary Text (7):
Major difficulties with commercial preparation of microcapsules arise when density-driven phase separation of the immiscible carrier fluids occurs. This is especially true when the microcapsules are constructed by forming water/oil emulsions or when attempts are made to encapsulate multiple drugs. This limits the yield and often results in microcapsules that are not spherical nor uniform in size. Non-conformity limits the packing density (and, thereby, the drug payload delivered) when the microcapsules arrive at the target tissues.

Brief Summary Text (10):
Spherical multilamellar vesicles (mlv) are rarely formed by these methods and the size distribution is quite heterogeneous. Typically, in order to generate multilamellar vesicles, film casting techniques with organic solvents, hydration and sizing using filtration through inert membrane filters are required [Talsma and Crommelin 1992]. Methods of forming multi-layered microcapsules often require emulsification of the aqueous phase into organic carrier solutions by shear, bubbling or sonication. Sophisticated, multi-step emulsion technology is required and yields of uniform type and size are often very low.

Brief Summary Text (14):
The use of solid matrix microspheres containing adsorbed drugs within the matrix is also known. For instance, U.S. Pat. No. 4,492,720 to Mosier disclosed methods for making microspheres to deliver chemotherapeutic drugs (including Cis-Platinum) to vascularized tumors. This method of preparing microspheres is accomplished by liquid encapsulation and solid-phase entrapment wherein the water-soluble drug is dispersed in a solid matrix material. The method involves dissolving the aqueous drug and the matrix material in an organic solvent, in which they are mutually soluble, then dispersing this mixture in a second organic solvent to form an emulsion that is stable enough for intravascular injection.

Brief Summary Text (51):
An embodiment of the present invention is a micromixer useful for mixing two or more immiscible liquid phases comprising a microcapsule comprising two or more immiscible liquid phases enclosed in a polymer shell and an energy absorbing medium; and an energy source compatible with the energy absorbing medium. By a compatible energy source and energy absorbing medium, it meant that the medium is capable of absorbing the energy source used. For example, a chromophore or other material that absorbs light of a certain wavelength would be compatible with an energy source that includes light at that wavelength. Or a medium that absorbs radio waves of a certain frequency would be compatible with a source of energy at that frequency. It is also understood that the materials used to construct the microcapsules and including the oils and liquids comprising the immiscible phases may also serve as energy absorbing media.

Brief Summary Text (52):
The micromixers of the present disclosure will have other uses that may be practiced by those in the art. For example, one may place microcapsules in a solution, such as blood, serum, or other solution that contains a water soluble element that one wants to remove, such as a toxin. In the practice of this embodiment, the water soluble element would be allowed to diffuse across the polymer shell into an aqueous layer in

the microcapsule. The microcapsules would contain an element that absorbs or binds the toxin in a liquid layer immiscible with the aqueous layer. After an appropriate time for diffusion, the energy source is applied, thus mixing the contents of the microcapsule and causing the toxin to be removed from solution. The microcapsules can then be removed by centrifugation, filtering, or other means. In those embodiments in which ferromagnetic particles are included in the microcapsules, separation may be accomplished by exposing the solution to a magnetic field.

Brief Summary Text (54):
The micromixer may utilize any source of irradiation or energy such as electromagnetic fields and ultrasound. More particularly it may utilize ultraviolet light, near infrared light, radiofrequency, or microwave. In certain embodiments, the inventors have demonstrated for example the use of ultraviolet light of 330-390 nanometers wavelength. In certain embodiments the immiscible liquid phases are further defined as comprising at least one aqueous phase and at least one hydrophobic or organic phase,

Brief Summary Text (88):
Traditional emulsion methods form a O/W/O (oil/water/oil) or W/O/W (water/oil/water) liquid system which is designed to retain the internal phase(s) within the external solvent unless the emulsion is broken, whereupon the liquid phases separate. In the methods of the invention, the use of surfactants and co-surfactants permits formation of an emulsion of large spheroids (not small microspheroids) of one phase dispersed in the other phase configured in a sphere. The sphere is also surrounded by another immiscible liquid layer (opposite phase to that of the innermost liquid sphere) and then (often) this multi-layered sphere is contained in another opposite-phase liquid layer and finally the entire multi-layered sphere is contained in an outer skin. The results of the process of the invention are not to form a traditional O/W/O or W/O/W emulsion (which is a fine dispersion of one phase in another), but rather to form multi-lamellar, alternating immiscible-layer microcapsules contained within a thin, semi-permeable outer skin. In the microcapsules of the invention, the immiscible phases are distinct and separated according to the surface tension characteristics of the liquids at each interface.

CLAIMS:

10. A micromixer useful for mixing two or more immiscible liquid phases contained in the micromixer comprising:

a microcapsule comprising two or more immiscible internal liquid phases enclosed in a polymer shell and a radiant energy source effective to generate liquid flow within the microcapsule,

said microcapsule formed by a method comprising:

formulating a first phase comprising a first solvent, a first polymer soluble in said first phase and immiscible in a second phase, a co-solvent, oil, and water;

formulating said second phase immiscible with said first phase, said second phase comprising a second solvent, a second polymer soluble in said second phase and immiscible in said first phase, a surface active agent, and a salt;

said surface active agent having a hydrophilic/lipophilic balance value greater than that of said first polymer;

said second polymer having a hydrophilic/lipophilic balance value lower than that of said surface active agent;

creating an interface between said first and second phases in a manner that limits fluid shear, and

maintains adsorptive surface characteristics at said interface.

63. A micromixer useful for mixing two or more immiscible liquid phases contained in the micromixer comprising:

a microcapsule consisting of two or more immiscible internal liquid phases, wherein neither internal immiscible liquid phase is enclosed separately by a polymer shell but wherein the internal immiscible liquid phases are enclosed together in a single polymer shell and a radiant energy source effective to generate liquid flow within the microcapsule.

64. The micromixer of claim 63, wherein said internal liquid phases include an aqueous phase and a hydrocarbon or oil phase.

65. The micromixer of claim 63, wherein the energy source is selected from the group consisting of a source of ultraviolet light, an electromagnetic field, a radiofrequency, or microwave energy.

66. A micromixer useful for mixing two or more immiscible liquid phases contained in the micromixer comprising:

a microcapsule comprising two or more immiscible internal liquid phases enclosed in a polymer shell and a radiant energy source effective to generate liquid flow within the microcapsule,

wherein the energy source is a source of ultraviolet light at 220 to 390 nanometers wavelength.

67. The micromixer of claim 64, wherein said micromixer comprises a reactant associated with an aqueous phase and a different reactant associated with a hydrocarbon or oil phase, wherein said reactants produce a chemical reaction upon contact and wherein said mixing increases the reaction kinetics of the reaction.

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Search Results - Record(s) 1 through 27 of 27 returned.

☐ 1. Document ID: US 6492471 B1

L6: Entry 1 of 27 File: USPT Dec 10, 2002

US-PAT-NO: 6492471
DOCUMENT-IDENTIFIER: US 6492471 B1

TITLE: Method for producing bead polymers

DATE-ISSUED: December 10, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Eisenbeiss; Friedhelm	Weiterstadt			DE
Kinkel; Joachim	Guldental			DE
Muller; Hans-Daniel-Jakob	Munster			DE

US-CL-CURRENT: 526/88; 526/317.1, 526/329.7, 526/336, 526/909, 528/10, 528/425, 536/63

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw. Desc | Image

☐ 2. Document ID: US 6415821 B2

L6: Entry 2 of 27 File: USPT Jul 9, 2002

US-PAT-NO: 6415821
DOCUMENT-IDENTIFIER: US 6415821 B2

TITLE: Magnetically actuated fluid handling devices for microfluidic applications

DATE-ISSUED: July 9, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kamholz; Andrew	Seattle	WA		
Hatch; Anson	Seattle	WA		
Bohringer; Karl	Seattle	WA		
Yager; Paul	Seattle	WA		

US-CL-CURRENT: 137/827; 137/251.1, 417/92

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw. Desc | Image

☐ 3. Document ID: US 6408884 B1

L6: Entry 3 of 27 File: USPT Jun 25, 2002

US-PAT-NO: 6408884
DOCUMENT-IDENTIFIER: US 6408884 B1

TITLE: Magnetically actuated fluid handling devices for microfluidic applications

DATE-ISSUED: June 25, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kamholz; Andrew	Seattle	WA		
Hatch; Anson	Seattle	WA		
Bohringer; Karl	Seattle	WA		
Yager; Paul	Seattle	WA		
Weigl; Berhard	Seattle	WA		

US-CL-CURRENT: 137/827; 137/251.1, 417/92

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw. Desc | Image

☐ 4. Document ID: US 6107465 A

L6: Entry 4 of 27 File: USPT Aug 22, 2000

US-PAT-NO: 6107465
DOCUMENT-IDENTIFIER: US 6107465 A

TITLE: IL-1.beta. and derivatives thereof and drugs

DATE-ISSUED: August 22, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Nakai; Satoru	Tokushima-ken			JP
Kaneta; Mayumi	Tokushima-ken			JP
Kikumoto; Yoshikazu	Tokushima-ken			JP
Hong; Yeong-Man	Naruto			JP
Kawai; Kazuyoshi	Tokushima-ken			JP
Takegata; Setsuko	Tokushima			JP
Ishii; Kiyoshi	Tokushima-ken			JP
Yanagihara; Yasuo	Tokushima			JP
Hirai; Yoshikatsu	Tokushima-ken			JP

US-CL-CURRENT: 530/351; 424/85.2, 930/141

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw. Desc | Image

☐ 5. Document ID: US 6099864 A

L6: Entry 5 of 27 File: USPT Aug 8, 2000

US-PAT-NO: 6099864
DOCUMENT-IDENTIFIER: US 6099864 A

TITLE: In situ activation of microcapsules

DATE-ISSUED: August 8, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Morrison; Dennis R.	Kemah	TX		
Mosier; Benjamin	Houston	TX		

US-CL-CURRENT: 424/489; 264/4.1, 264/4.3, 264/4.32, 264/4.33, 424/423, 424/450, 428/402.2, 428/402.21, 514/951

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

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☐ 6. Document ID: US 5847098 A

L6: Entry 6 of 27 File: USPT Dec 8, 1998

US-PAT-NO: 5847098
DOCUMENT-IDENTIFIER: US 5847098 A
**** See image for Certificate of Correction ****

TITLE: DNA encoding interleukin IL-1.beta. mutant

DATE-ISSUED: December 8, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Nakai; Satoru	Tokushima-ken			JP
Kaneta; Mayumi	Tokushima-ken			JP
Kikumoto; Yoshikazu	Tokushima-ken			JP
Hong; Yeong-Man	Naruto			JP
Kawai; Kazuyoshi	Tokushima-ken			JP
Takegata; Setsuko	Tokushima			JP
Ishii; Kiyoshi	Tokushima-ken			JP
Yanagihara; Yasuo	Tokushima			JP
Hirai; Yoshikatsu	Tokushima-ken			JP

US-CL-CURRENT: 536/23.5; 435/252.3, 435/320.1, 435/69.52, 435/71.1, 435/71.2, 530/351

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

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☐ 7. Document ID: US 5756675 A

L6: Entry 7 of 27 File: USPT May 26, 1998

US-PAT-NO: 5756675
DOCUMENT-IDENTIFIER: US 5756675 A

TITLE: IL-1.alpha. derivatives

DATE-ISSUED: May 26, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Hirai; Yoshikatsu	Tokushima-ken			JP
Nakai; Satoru	Tokushima-ken			JP
Aihara; Koutoku	Tokushima			JP
Kawai; Kazuyoshi	Tokushima-ken			JP
Kaneta; Mayumi	Tokushima-ken			JP
Kamogashira; Takashi	Tokushima			JP
Masui; Yoshihiro	Tokushima-ken			JP

US-CL-CURRENT: 530/351; 435/69.52, 530/350

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw. Desc | Image

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☐ 8. Document ID: US 5723117 A

L6: Entry 8 of 27 File: USPT Mar 3, 1998

US-PAT-NO: 5723117
DOCUMENT-IDENTIFIER: US 5723117 A

TITLE: Use of interleukin-1 (IL-1) to inhibit development of hepatitis

DATE-ISSUED: March 3, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Nakai; Satoru	Tokushima			JP
Akamatsu; Seiji	Naruto			JP
Masui; Yoshihiro	Tokushima			JP
Nishida; Tsutomu	Naruto			JP
Kamogashira; Takashi	Tokushima			JP
Hirai; Yoshikatu	Suita			JP

US-CL-CURRENT: 424/85.2; 435/69.52

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw. Desc | Image

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☐ 9. Document ID: US 5702698 A

L6: Entry 9 of 27 File: USPT Dec 30, 1997

US-PAT-NO: 5702698
DOCUMENT-IDENTIFIER: US 5702698 A

TITLE: Methods of use of IL-1.alpha.

DATE-ISSUED: December 30, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Nakai; Satoru	Tokushima-ken			JP
Kaneta; Mayumi	Tokushima-ken			JP
Kikumoto; Yoshikazu	Tokushima-ken			JP
Hong; Yeong-Man	Naruto			JP
Kawai; Kazuyoshi	Tokushima-ken			JP
Takegata; Setsuko	Tokushima			JP
Ishii; Kiyoshi	Tokushima-ken			JP
Yanagihara; Yasuo	Tokushima			JP
Hirai; Yoshikatsu	Tokushima-ken			JP

US-CL-CURRENT: 424/85.2; 514/2, 514/8, 530/351

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

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☐ 10. Document ID: US 5543140 A

L6: Entry 10 of 27 File: USPT Aug 6, 1996

US-PAT-NO: 5543140
DOCUMENT-IDENTIFIER: US 5543140 A

TITLE: Method and use of IL-1.alpha.

DATE-ISSUED: August 6, 1996

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Nakai; Satoru	Tokushima-ken			JP
Kaneta; Mayumi	Tokushima-ken			JP
Kikumoto; Yoshikazu	Tokushima-ken			JP
Hong; Yeong-Man	Naruto			JP
Kawai; Kazuyoshi	Tokushima-ken			JP
Takegata; Setsuko	Tokushima			JP
Ishii; Kiyoshi	Tokushima			JP
Yanagihara; Yasuo	Tokushima			JP
Hirai; Yoshikatsu	Tokushima-ken			JP

US-CL-CURRENT: 424/85.2; 424/278.1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

☐ 11. Document ID: US 5371204 A

L6: Entry 11 of 27 File: USPT Dec 6, 1994

US-PAT-NO: 5371204
DOCUMENT-IDENTIFIER: US 5371204 A

TITLE: Gene that encodes for polypeptides of IL-1.alpha.

DATE-ISSUED: December 6, 1994

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Nakai; Satoru	Tokushima			JP
Kaneta; Mayumi	Tokushima			JP
Kikumoto; Yoshikazu	Tokushima			JP
Hong; Yeong-Man	Naruto			JP
Kawai; Kazuyoshi	Tokushima			JP
Takegata; Setsuko	Tokushima			JP
Ishii; Kiyoshi	Tokushima			JP
Yanagihara; Yasuo	Tokushima			JP
Hirai; Yoshikatsu	Tokushima			JP

US-CL-CURRENT: 536/23.5; 435/252.3, 435/320.1, 435/69.5, 435/69.52

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
Draw Desc | Image

☐ 12. Document ID: US 5342615 A

L6: Entry 12 of 27 File: USPT Aug 30, 1994

US-PAT-NO: 5342615
DOCUMENT-IDENTIFIER: US 5342615 A

TITLE: Method for treating arthritis or inflammation with Il-1.alpha. or derivatives thereof

DATE-ISSUED: August 30, 1994

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Nakai; Satoru	Takushima			JP
Hirai; Yoshikatsu	Takushima			JP

US-CL-CURRENT: 424/85.2; 424/85.1, 514/2, 514/21, 514/8, 514/825, 514/886

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
Draw Desc | Image

☐ 13. Document ID: US 5342614 A

L6: Entry 13 of 27 File: USPT Aug 30, 1994

US-PAT-NO: 5342614
DOCUMENT-IDENTIFIER: US 5342614 A

TITLE: Method of treating arthritus or inflammation with IL-1.beta. or derivatives thereof

DATE-ISSUED: August 30, 1994

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Nakai; Satoru	Tokushima			JP
Hirai; Yoshikatsu	Tokushima			JP

US-CL-CURRENT: 424/85.2; 424/85.1, 514/2, 514/21, 514/8, 514/825, 514/886

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWMC | Draw Desc | Image

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☐ 14. Document ID: US 5120534 A

L6: Entry 14 of 27 File: USPT Jun 9, 1992

US-PAT-NO: 5120534
DOCUMENT-IDENTIFIER: US 5120534 A
**** See image for Certificate of Correction ****

TITLE: IL-1.alpha. derivatives and medicament for treating thrombocytopenia

DATE-ISSUED: June 9, 1992

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Hirai; Yoshikatsu	Tokushima			JP
Nakai; Satoru	Tokushima			JP
Aihara; Koutoku	Tokushima			JP
Kawai; Kazuyoshi	Tokushima			JP
Kaneta; Mayumi	Tokushima			JP
Kamogashira; Takashi	Tokushima			JP
Masui; Yoshihiro	Tokushima			JP

US-CL-CURRENT: 424/85.2; 424/85.1, 435/69.52, 530/351

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWMC | Draw Desc | Image

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☐ 15. Document ID: US 5008374 A

L6: Entry 15 of 27 File: USPT Apr 16, 1991

US-PAT-NO: 5008374
DOCUMENT-IDENTIFIER: US 5008374 A

TITLE: IL-1.alpha. derivatives and drugs

DATE-ISSUED: April 16, 1991

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Nakai; Satoru	Tokushima			JP
Kaneta; Mayumi	Tokushima			JP
Kikumoto; Yoshikazu	Tokushima			JP
Hong; Yeong-Man	Naruto			JP
Kawai; Kazuyoshi	Tokushima			JP
Takegata; Setsuko	Tokushima			JP
Ishii; Kiyoshi	Tokushima			JP
Yanagihara; Yasuo	Tokushima			JP
Hirai; Yoshikatsu	Tokushima			JP

US-CL-CURRENT: 530/351; 424/85.1, 424/85.2, 435/69.5, 435/69.52, 530/820

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

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☐ 16. Document ID: US 4898818 A

L6: Entry 16 of 27 File: USPT Feb 6, 1990

US-PAT-NO: 4898818
DOCUMENT-IDENTIFIER: US 4898818 A
**** See image for Certificate of Correction ****

TITLE: Antitumor active substance, process for preparing the same, drug containing the substance, gene coding for the substance, vector containing the gene and recombinant microorganism

DATE-ISSUED: February 6, 1990

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Nakai; Satoru	Tokushima			JP
Kaneta; Mayumi	Tokushima			JP
Kikumoto; Yoshikazu	Tokushima			JP
Hong; Yeong-Man	Naruto			JP
Kawai; Kazuyoshi	Naruto			JP
Takegata; Setsuko	Tokushima			JP
Ishii; Kiyoshi	Tokushima			JP
Yanagihara; Yasuo	Tokushima			JP
Hirai; Yoshikatsu	Tokushima			JP

US-CL-CURRENT: 435/69.1; 424/85.2, 435/69.5, 435/70.4, 530/351

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

☐ 17. Document ID: US 4769321 A

L6: Entry 17 of 27 File: USPT Sep 6, 1988

US-PAT-NO: 4769321
DOCUMENT-IDENTIFIER: US 4769321 A

TITLE: Assay method and reagent therefor

DATE-ISSUED: September 6, 1988

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Self; Colin H.	Cambridge CB2 1EG			GB

US-CL-CURRENT: 435/7.91; 435/21, 435/26, 435/7.4

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWMC | Draw Desc | Image

☐ 18. Document ID: US 4624927 A

L6: Entry 18 of 27 File: USPT Nov 25, 1986

US-PAT-NO: 4624927
DOCUMENT-IDENTIFIER: US 4624927 A

TITLE: Reagent for determination of blood coagulation factor XIII

DATE-ISSUED: November 25, 1986

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Fukushima; Tsunekazu	Osaka			JP
Fujii; Mitsugu	Osaka			JP
Funakoshi; Satoshi	Osaka			JP
Suyama; Tadakazu	Osaka			JP

US-CL-CURRENT: 436/16; 436/520, 436/521, 436/808

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWMC | Draw Desc | Image

☐ 19. Document ID: US 4598042 A

L6: Entry 19 of 27 File: USPT Jul 1, 1986

US-PAT-NO: 4598042
DOCUMENT-IDENTIFIER: US 4598042 A

TITLE: Immunoassay with an increasing cyclic detection system

DATE-ISSUED: July 1, 1986

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Self; Colin H.	Cambridge CB2 1EG			GB

US-CL-CURRENT: 435/7.91; 435/21, 435/26, 435/7.92, 435/810, 435/966, 435/975, 436/518, 436/536

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

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☐ 20. Document ID: US 4446231 A

L6: Entry 20 of 27 File: USPT May 1, 1984

US-PAT-NO: 4446231
DOCUMENT-IDENTIFIER: US 4446231 A
**** See image for Certificate of Correction ****

TITLE: Immunoassay using an amplified cyclic detection system

DATE-ISSUED: May 1, 1984

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Self; Colin H.	Cambridge CB2 1EG			GB2

US-CL-CURRENT: 435/7.91; 435/21, 435/26, 435/7.92, 435/810, 435/966

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

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☐ 21. Document ID: US 4269974 A

L6: Entry 21 of 27 File: USPT May 26, 1981

US-PAT-NO: 4269974
DOCUMENT-IDENTIFIER: US 4269974 A

TITLE: Clabber-free xanthan gum

DATE-ISSUED: May 26, 1981

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Wintersdorff; Peter	San Diego	CA		

US-CL-CURRENT: 536/114; 426/589

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

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☐ 22. Document ID: WO 143857 A1

L6: Entry 22 of 27 File: EPAB Jun 21, 2001

PUB-NO: WO0000143857A1
DOCUMENT-IDENTIFIER: WO 143857 A1
TITLE: MICROMIXER

PUBN-DATE: June 21, 2001

INVENTOR-INFORMATION:

NAME	COUNTRY
EHRFELD, WOLFGANG	DE
HESSEL, VOLKER	DE

INT-CL (IPC): B01 F 5/06; B01 J 19/00
EUR-CL (EPC): B01F005/06; B01J019/00

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw. Desc | Image

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☐ 23. Document ID: WO 76648 A1

L6: Entry 23 of 27 File: EPAB Dec 21, 2000

PUB-NO: WO0000076648A1
DOCUMENT-IDENTIFIER: WO 76648 A1
TITLE: MICROMIXER

PUBN-DATE: December 21, 2000

INVENTOR-INFORMATION:

NAME	COUNTRY
EHRFELD, WOLFGANG	DE
MICHEL, FRANK	DE
LOHF, ASTRID	DE
GRAEFF, VOLKER	DE

INT-CL (IPC): B01 F 13/00; B01 F 5/06
EUR-CL (EPC): B01F005/06; B01F005/06, B01F013/00

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw. Desc | Image

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☐ 24. Document ID: WO 54735 A1

L6: Entry 24 of 27 File: EPAB Sep 21, 2000

PUB-NO: WO0000054735A1
DOCUMENT-IDENTIFIER: WO 54735 A1
TITLE: METHOD FOR PRODUCING COSMETIC OR PHARMACEUTICAL FORMULATIONS BY MEANS OF A MICROMIXTURE DIRECTLY BEFORE USE

PUBN-DATE: September 21, 2000

INVENTOR-INFORMATION:

NAME	COUNTRY
ZUR, LAGE JUTTA	DE
DRILLER, HANS-JUERGEN	DE
BUENGER, JOACHIM	DE
WAGNER, ANNETTE	DE

INT-CL (IPC): A61 K 7/00; A61 K 31/00
EUR-CL (EPC): A61K007/00; A61K007/00, A61K009/06 , A61K009/08 , B01F013/00

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
Draw. Desc | Image

☐ 25. Document ID: DE 19917156 A1 EP 1183094 A1 WO 200062914 A1

L6: Entry 25 of 27 File: DWPI Oct 26, 2000

DERWENT-ACC-NO: 2000-639625
DERWENT-WEEK: 200224
COPYRIGHT 2003 DERWENT INFORMATION LTD
TITLE: Production of water-in-oil fuel emulsions, especially for use in internal combustion engines, comprises splitting a water stream into separate lamellae and introducing the lamellae into a diesel oil stream

INVENTOR: EHRFELD, W; HESSEL, V ; SCHIEWE, J

PRIORITY-DATA: 1999DE-1017156 (April 16, 1999)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
DE 19917156 A1	October 26, 2000		017	B01F003/08
EP 1183094 A1	March 6, 2002	G	000	B01F003/08
WO 200062914 A1	October 26, 2000	G	000	B01F003/08

INT-CL (IPC): B01 F 3/08; B01 F 5/04; B01 F 5/06; B01 F 11/02; B01 J 19/00; B01 L 3/00; F02 M 25/022

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
Draw. Desc | Clip Img | Image

☐ 26. Document ID: US 20030048693 A1 DE 19911776 A1 WO 200054890 A1 AU 200038090 A EP 1159076 A1 CN 1343143 A JP 2002538909 W

L6: Entry 26 of 27 File: DWPI Mar 13, 2003

DERWENT-ACC-NO: 2000-629009
DERWENT-WEEK: 200321
COPYRIGHT 2003 DERWENT INFORMATION LTD
TITLE: Packaging system, mixing cosmetic formulations for use in-situ, includes chambers feeding micromixer to produce e.g. cosmetic formulations as lotions, emulsions, gels or creams, offering novel formulation options

INVENTOR: BUENGER, J; DRILLER, H ; LAGE, J Z ; WAGNER, A ; ZUR LAGE, J ; ZUR LANGE, J

PRIORITY-DATA: 1999DE-1011776 (March 17, 1999)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
US 20030048693 A1	March 13, 2003		000	B01F005/06
DE 19911776 A1	September 21, 2000		008	B65D081/32
WO 200054890 A1	September 21, 2000	G	000	B05B011/00
AU 200038090 A	October 4, 2000		000	B05B011/00
EP 1159076 A1	December 5, 2001	G	000	B05B011/00
CN 1343143 A	April 3, 2002		000	B05B011/00
JP 2002538909 W	November 19, 2002		019	A61J003/00

INT-CL (IPC): A45 D 34/00; A61 J 3/00; A61 K 7/00; B01 F 5/06; B05 B 11/00; B65 D 23/04; B65 D 81/32; B65 D 83/14

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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☐ 27. Document ID: JP 2002538947 W DE 19911777 A1 WO 200054735 A1 AU 200039611 A EP 1161221 A1 CN 1344145 A

L6: Entry 27 of 27 File: DWPI Nov 19, 2002

DERWENT-ACC-NO: 2000-619747
DERWENT-WEEK: 200281
COPYRIGHT 2003 DERWENT INFORMATION LTD
TITLE: Preparation of cosmetic or pharmaceutical compositions immediately prior to use comprises passing two or more liquid ingredients from separate storage compartments through a micromixer

INVENTOR: BUENGER, J; DRILLER, H ; LAGE, J Z ; WAGNER, A ; ZUR LAGE, J

PRIORITY-DATA: 1999DE-1011777 (March 17, 1999)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
JP 2002538947 W	November 19, 2002		024	B01F003/08
DE 19911777 A1	September 21, 2000		011	A61K007/00
WO 200054735 A1	September 21, 2000	G	000	A61K007/00
AU 200039611 A	October 4, 2000		000	A61K007/00
EP 1161221 A1	December 12, 2001	G	000	A61K007/00
CN 1344145 A	April 10, 2002		000	A61K007/00

INT-CL (IPC): A61 K 7/00; A61 K 7/42; A61 K 7/48; A61 K 9/107; A61 K 31/00; B01 F 3/08; B01 F 5/00; B01 F 5/06

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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Terms	Documents
L5 and emulsion	27

Display Format: - Change Format

Previous Page Next Page

WEST

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L4: Entry 136 of 151 File: USPT Aug 19, 1997

DOCUMENT-IDENTIFIER: US 5658578 A
TITLE: Cosmetic composition

Brief Summary Text (2):
This invention relates to preparations for external application to the skin, more particularly external preparations having powerful effects of preventing skin roughening and improving the skin. The external preparation of the present invention is suitably applied to cosmetics, such as clear lotions, creams, milky lotions, facial packs, and scalp care cosmetics, or medicines, such as ointments for wounds or inflammation.

Drawing Description Text (6):
The preparations according to the present invention denote those externally applied to the skin, such as cosmetics, pharmaceuticals, and non-medical applications and may therefore take a wide variety of forms, such as clear solutions, microemulsions, emulsions, powders, oily liquids, gels, ointments, water-oil two phase systems, water-oil-powder three phase systems, and the like.

Detailed Description Text (33):
A replica of the surface condition of the facial skin of a healthy woman was taken using a silicon resin and observed under a microscope of 17 magnifications. The skin roughness was graded from the conditions of dermatoglyphs and the peeling conditions of the corneum based on the following standards. Those women whose skin was graded 1 or 2 were divided in 6 groups each consisting of 10 women. The lotion of Example 2 or 5 was applied to the right half of the face while the lotion of Comparative Examples 1 to 6 was applied to the left half each twice a day. Two weeks later, a replica was again taken, and the skin conditions were observed and graded in the same manner as above. The results obtained are shown in Table 3 below.

Detailed Description Paragraph Table (5):
Moistening Cream
Stearic acid 2.0 wt % Stearyl alcohol 3.0 Reduced lanolin 2.0 Octyldodecanol 6.0 Maltitol hydroxylauryl ether 3.0 Glycerol monostearate 2.0 Antiseptic proper amount Perfume proper amount Propylene glycol 10.0 Glycerin 3.0 Hyaluronic acid 2.0 Enzymolysis product of egg white 0.01 Tranexamic acid 5.0 Disodium adenosine triphophate 5.0 Ginseng extract 0.005 Purified water balance

Detailed Description Paragraph Table (6):
Milky Lotion
Stearic acid 1.0 wt % Cetanol 1.5 Vaseline 3.0 Lanolin alcohol 2.0 Liquid paraffin 8.0 Squalane 5.0 Jojoba oil 1.0 V-E acetate 0.5 2-Ethylhexyl p-methoxycinnate 0.5 POE (20) behenyl ether 1.5 POE (10) monooleate 1.0 Triethanolamine 1.0 1,3-Butylene glycol 10.0 Dipropylene glycol 8.0 Chondroitin sulfate 0.05 Tranexamic acid 5.0 Disodium adenosine triphophate 0.01 Ginseng extract 5.0 Purified water balance

Detailed Description Paragraph Table (7):
Milkyl Lotion
Stearic acid 1.0 wt % Behenic acid 1.0 Behenyl alcohol 2.0 Dimethylpolysiloxane 3.0 Macademia nut oil 1.0 Vaseline 3.0 Stearyl glycyrrhetinate 0.1 Glycerol tri(2-ethylhexanoate) 2.0 Evening primrose oil 0.1

Vitamin E 0.1 Placenta extract 0.1 Magnesium ascorbic acid phosphate 0.1 Tranexamic acid 0.1 Disodium adenosine triphophate 0.001 Ginseng extract 0.01 Trisodium edetate 0.1 Carboxyvinyl polymer 0.2 Propylene glycol 5.0 Dipropylene glycol 10.0 Sodium hyaluronate 0.2 Potassium hydroxide 0.1 Antiseptic proper amount Perfume proper amount Purified water balance

Detailed Description Paragraph Table (8):

Clear Lotion

Sorbitol 2.0 wt % Dipropylene glycol 5.0 Sodium chondroitin sulfate 1.0 Sodium metaphosphate 0.1 Dipotassium glycyrrhizinate 0.1 Tranexamic acid 3.0 Disodium adenosine triphophate 0.5 Ginseng extract 7.0 Ethanol 10.0 POE (50) hardened castor oil 0.5 Antiseptic proper amount Perfume proper amount Purified water balance

Detailed Description Paragraph Table (10):

Aqueous Gel

1,3-Butylene glycol 5.0 wt % Glycerin 20.0 Maltitol 3.0 Ethyl cellulose 0.3 Carboxyvinyl polymer 0.5 Tranexamic acid 1.0 Ginseng extract 0.05 Disodium adenosine triphophate 0.005 Potassium hydroxide 0.15 POE (50) hardened castor oil 1.0 Nylon powder 2.0 Squalane 3.0 Antiseptic proper amount Perfume proper amount Colorant proper amount Trisodium edetate 0.01

Current US Original Classification (1):

424/401